



Math Virtual Learning

Grade 8

Two-Way Table: Review

May 6, 2020



Math 8

Lesson: May 6, 2020

Objective/Learning Target:

I can use relative frequency to describe possible association between two variables in a two-way table.

Warm-Up:

Answers on next slide

Out of the people surveyed, how many would rather watch football or baseball?

What is your favorite sport to watch on television?			
	Football	Basketball	Baseball
Males	40	22	15
Females	12	16	45
Total	52	38	60

Warm-Up: *Answer Key*

What is your favorite sport to watch on television?				
	Football	Basketball	Baseball	Total
Males	40	22	15	77
Females	12	16	45	73
Total	52	38	60	150

Solution: First, there are **150** total people surveyed. ($52 + 38 + 60 = 150$)

Secondly, the total number of people who watch football or baseball is **112**. ($52 + 60 = 112$)

So **112 out of the 150** people would rather watch football or baseball.

Video:

Take notes on a piece of paper as you watch this video.

Reading a Two-Way Table

	Like Skateboards	Do Not Like Skateboards	Totals
Like Snowmobiles	80	25	105
Do not like Snowmobiles	45	10	55
Totals	125	35	160

MathBits.com

Review: Construct a Two-Way Table

“100 students went to lunch. 56 were boys and 44 were girls. 33 students ate sandwiches, 60 ate pizza, and 7 ate salads. 20 boys ate sandwiches and 35 boys ate pizza. Fill out the table.”

	Boys	Girls	Total
Sandwiches	20	13	33
Pizza	35	25	60
Salads	1	6	7
Total	56	44	100

1) Label your first row and first column using your descriptive words (categorical data) from the problem, and the last column and last row “Total”.

(Blue and black labels)

2) Use the numbers (numerical data) from the given information to fill out the table in the correct rows

and columns. (Red labels)

3) Complete the table by filling in the missing values. Each row (and each column) must add to the total at the end of the row (or column). *First, look for a row or column that only has one missing value.*

(Green labels)

4) Double-check that all of your rows and columns add up to the totals. This will ensure your entire table is correctly filled out.

Review: Interpret a Two-Way Table

“What is the relative frequency that a girl likes sandwiches?”

	Boys	Girls	Total
Sandwiches	20	13	33
Pizza	35	25	60
Salads	1	6	7
Total	56	44	100

1) You will be given a table and a question. The question can be broken into two parts: the **sample size** and the **group size**. The sample size is the small, specific number. The group size is the larger number and is not always the grand total.

The sample size is “girls who like sandwiches”. The group size is “girls”.

2) Create a fraction of the sample size (numerator) and group size (denominator).

$$\frac{\text{sample size}}{\text{group size}} = \frac{\text{“girls who like sandwiches”}}{\text{“girls”}} = \frac{13}{44}$$

3) Use a calculator to divide. Then write your answer as a percentage (multiply by 100).

$$\frac{13}{44} = 0.29545454... \quad \times 100 = 29.5 \%$$

Practice 1:

Answers on next slide

The two-way table gives some information about how 100 children travelled to school one day.

	Walk	Car	Other	Total
Boy	15		14	54
Girl		8	16	
Total	37			100

- a) Complete the two-way table.
- b) What is the probability that a child walked to school that day?

Practice 1: *Answer Key*

	Walk	Car	Other	Total
Boy	15	25	14	54
Girl	22	8	16	46
Total	37	33	30	100

Solution: There are **100** total students.

And there are **37** students who walked to school.

So **37 out of 100** students walk to school.

$$37 / 100 = 0.37 \times 100 = \text{37 \%}$$

Practice 2:

Answers on next slide

A group of students took a Math Test and Science Test. The results are shown below.

		Results for Mathematics		
		Pass	Fail	Total
Results for Science	Pass		5	125
	Fail	25		
	Total	145	15	160

- Complete the two-way table.
- What is the relative frequency that a student who failed the Math Test also failed the Science Test?

Practice 2: *Answer Key*

		Results for Mathematics		
		Pass	Fail	Total
Results for Science	Pass	120	5	125
	Fail	25	10	35
	Total	145	15	160

Solution: There are 15 students who failed the math test.

Out of those 15 students, there are 10 students who also failed the Science Test.

So $10 / 15 = 0.66666... \times 100 = 66.7 \%$

Practice 3:

Answers on next slide

A group of audience members at a play were seated in different sections. The results are shown below.

	Stalls	Circle	Balcony	Total
Adults	36	39		112
Children	41		31	
Total		60		

- Complete the two-way table.
- What is the relative frequency that a child was sitting in the balcony?
- What is the relative frequency that someone who was sitting in the balcony was a child?

Practice 3: *Answer Key*

	Stalls	Circle	Balcony	Total
Adults	36	39	37	112
Children	41	21	31	93
Total	77	60	68	205

Solutions: There are 93 children and 31 of them were in the balcony.

$$31 / 93 = 0.333333... \times 100 = 33.3 \%$$

There are 68 people sitting in the balcony and 31 of them were children.

$$31 / 68 = 0.455882... \times 100 = 45.6 \%$$

Practice 4:

Answers on next slide

**50 students were asked about their favorite flavor of ice cream.
Complete the table using the information below.**

	Chocolate	Vanilla	Total
Boy			
Girl			
Total			

There were 42 boys.

40 boys like chocolate ice cream.

3 girls like chocolate ice cream.

**7 students like vanilla ice cream
and 5 of them are girls.**

Practice 4: *Answer Key*

	Chocolate	Vanilla	Total
Boy	40	2	42
Girl	3	5	8
Total	43	7	50

50 students total (given in description)

There were **42** boys.

40 boys like chocolate ice cream.

3 girls like chocolate ice cream.

7 students like vanilla ice cream and **5** of them are girls.

Add/subtract to find the rest of the values in the table (listed in grey).

Practice 5:

Answers on next slide

80 students on the Track and Football teams were surveyed and asked if they prefer a hamburger or pizza for lunch.

Complete the table using the information below. Use whole numbers (round).

	Hamburger	Pizza	Total
Track			
Football			
Total			

55% of the students were football players

41% of football players prefer hamburgers

33% of track students prefer pizza

Practice 5: *Answer Key*

	Hamburger	Pizza	Total
Track	24	12	36
Football	18	26	44
Total	42	38	80

80 students total (given in description)

55% of the students were football players

$$0.55 \times 80 = 44$$

41% of football players prefer hamburgers

$$0.41 \times 44 = 18 \text{ (answer is rounded)}$$

33% of track students prefer pizza

$$\text{Track students: } 80 \text{ students} - 44 \text{ football} = 36$$

$$0.33 \times 36 = 12 \text{ (answer is rounded)}$$

Add/subtract to find the rest of the values in the table (listed in grey).

Additional Resources:

[Two-Way Tables, Find the Probability](#)

[Interpret Two-Way Tables](#)